

Zool.Zhurn., 48(8):1256-1258 (1969) Mice were caught in artificial larch and pine plantations (35 specimens) and in the fir forest. Soricidae from the Terskei-Alatau mountain range caught, in the cylinders, from (North-Tyan-Shan) in 1963 at 18 Sorex of the named species, 12 v.A.K. Kydyraliev and those months; in 1964 Institute of Biology, Academy of Sciences of the Kirgiz SSRing (Frunze) and in fall (September, October) their capture rate is very low: from 1963 to 1965 during these months only 3 specimens were obtained (over 4500 cylinder-nights).

Translated by Vilis Stare

From 1963 to 1965 in the Dzhylandy canyon of the Terskei-Alatau mountain range we studied small rodents of the fir forest also. At the same time, information was gathered on shrews. 16 100 cylinders, with a height of 60 cm and diameter of 30 cm were used. They were placed in staggered rows with a distance of 10 m between the cylinders within the rows, and 15 m between the over rows, in 5 different plots in the fir forests. The Dzhylandy canyon is located on the north slope of the eastern part of the Terskei-Alatau mountain range, 12 km to the east of the town of Prezheval'sk, at a height of 2200 m above sea level.

Shrews were trapped from April to October. 20650 cylinder-nights were run, during which 2100 specimens of mouse-like rodents and 243 shrews were caught: 92 Sorex asper Thom.; 114 S. minutus Linn.; 35 Crocidura suaveolens Pall. and 2 Neomys fodiens Penn. caught up till the end of June, but in June and

later, the size of the tester does not exceed 1-2 m, as Sorex asper Thom. were caught throughout the whole fir forest, but their most preferred spots were the more humid, and winter. Pregnant female S. asper in various years were caught in shaded plots, in the lower zones of the fir forest, with high light from June 7 to 17. At the same time, at the end of the summer and shrubby undergrowth, where almost 1/2 of the specimens of

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this species were caught. Fewer animals were caught in artificial larch and pine plantations (35 specimens) and in the fir forest (14 specimens). These Sorex were often best caught, in the cylinders, from June to August: in 1963 of 16 Sorex of the named species, 12 were caught during these months; in 1964 out of 25 - 23; and in 1965 out of 51 - 49 animals. In spring (April, May) and fall (September, October) their capture rate is very low: from 1963 to 1965 during these months only 8 specimens were obtained (over 4500 cylinder-nights).

Appreciable fluctuations in numbers of these Sorex are also observed each year. While in 1963, over 6500 cylinder-nights, 16 animals were obtained (capture success of 0.24%), in 1964 over 5720 cylinder-nights, 25 Sorex were caught (capture success of 0.44%), but in 1965, the number of animals increased to 51 over 8430 cylinder-nights (capture success of 0.60%). In years of little snow, with ice-covered ground, and frequent downpours in spring and summer, we often came to find dead shrews, mainly S. minutus.

In the Dzhylandy canyon, the S. asper rut occurs approximately in the middle of April. At this time the male testes enlarge to 9 mm, and the seminal vesicles inflate, which corresponds to the start of spermatogenesis. Males with enlarged testes are caught up till the end of June, but in June and later, the size of the testes does not exceed 1-2 mm, as ordinarily occurs outside of the reproductive period, in fall and winter. Pregnant female S. asper in various years were caught from June 7 to 17. At the same time, at the end of the

first 10-day period in June, young animals, already weaned, were caught in these places. If one assumes that young shrews become independent at approximately an age of one month (Dunaeva, 1955) then the first young in the spring litter are born here approximately in the middle of May. Beginning in the end of June, pregnant females are never caught. The animals obtained have no indication of reproduction. According to our data, female S. asper have two litters during the reproductive period: the first one of them appears in May, the second in June. The first and second litters are approximately 2-2.5 months apart. The number of embryos, according to necropsies of 9 females, is 5-9. Among S. asper males predominate, with the ratio of males to females ordinarily being 3:1 (June, July, August, 1965) less often 2:1 or 1:1 (June 1963 and 1964).

Sorex minutus Linn. predominated over other species of shrews, and generally made up 47.3% of the number of animals caught. The majority of them were caught in high-grass meadows, with thick underbrush, where 50 animals were caught out of a total of 114; of the rest, 49 specimens were caught in artificial larch and pine plantations, and 15 in the fir forest and in glades.

S. minutus was most active in June. In that month in 1963 the capture success was 0.48%, in 1964 - 1.2% and in 1965 - 0.44%. In July 1965, the capture success dropped to 0.23%, and in August to 0.19%. In 1963 over 6300 cylinder-nights a total of 42 animals were caught (capture success of 0.67%), in 1964 over 5720 cylinder-nights, 5 specimens (0.79%) and in 1965 over 8100

cylinder-nights, 23 specimens (0.33%).

Pregnant females were caught from the first 10-day period of July to the middle of August. Young weaned S. minutus were caught in 1963 from July 14, in 1964 from June 6, and in 1965 from June 12. The appearance of the juvenile animals on the surface in the first half of June shows that the first spring young of these Sorex are born, apparently, at the same time as S. asper, in the first half May. Males of these Sorex with maximally developed testes (length of 7-8 mm) are encountered from April to the end of July. Obviously, S. minutus has two litters - the first of these is born from the first half of May to the middle of June, and the second is born from the middle of July almost to the end of August. The number of young in a litter is usually 3-4. In one case 8 embryos were noted, while another female had 2 embryos in the second litter.

In very rare cases, females born in the first litter reproduce the same year. One pregnant first-year female with 4 completely formed embryos (2 in each horn of the uterus) was obtained on September 6 in 1964. These exceptionally rare cases, of S. minutus from the first litter taking part in reproduction, also have been mentioned for other areas, in particular, for North Kazakhstan (Karaseva & Il'enko, 1960), and for the forest-steppes of the Transurals (Schwarz, 1955).

The sex ratio of these Sorex varies a lot between months and years, but almost always males predominate. In June 1963 the number of males in proportion to females was 1.3:1, in 1964 - 1.5:1, but in 1965 - 3.6:1. In July this ratio for the

respective years was 3:2 and 6:1. From August this ratio changed to 1:1, or with the females predominating a bit.

Crocidura suaveolens Pall. are comparatively scanty in the Dzhylandy canyon, and make up only a negligible part of the shrews which live there (14.5%). From 1963 to 1965, over 20650 cylinder-nights, only 35 C. suaveolens were caught (trapping success of about 0.16%), 2 of them were caught on a plot in a tall-grass meadow at the lower limit of the fir forest. They are caught most often in June and July. The largest testicle size (6 mm in length) of the male C. suaveolens is seen from May to July. Pregnant females were collected in June and in August. In 1965, a female obtained in June had 7 embryos, each one 3 mm in diameter. R.P.Zimina (1964) caught a C. suaveolens which had 7 embryos measuring 2 X 3 mm, at the foot of the Alabash mountain (the northern slope of the western part of the Terskei-Alatau mountain range) on June 29, 1953. In the Dzhylandy canyon, a female was obtained on August 10, 1965 which had 5 embryos, the size of millet, but another female caught on the 29 of August had 4 completely formed embryos, just before birth. Young independent C. suaveolens were caught here from June 29 (in 1964 - 4 specimens, in 1965 - 6 specimens).

Taking into account the data presented by A.Y.Gureev (1963), that pregnancy in C.suaveolens lasts 4 weeks, and that young become independent after 6 weeks, one may conjecture that the species has 2 different litters.

2 specimens of Neomys fodiens Penn. were caught in the Dzhylandy canyon. There were also a few specimens from the

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Arashai Tugryen canyon - to the west of the Dzhylandy canyon.

Thus in the Terskei-Alatau fir forests there live 4 species of shrews. S. minutus and S. asper predominate among them, C. suaveolens is encountered less often, and N. fodiens very rarely. The reproduction of these is timed to the warm period of the year (May - August): they have 2 litters. Female S. minutus of the first litter now and then can take part in reproduction the same year. Judging by to the number of embryos, S. asper is very fertile, especially in the first litter.

The periods of reproduction are extended. The duration of pregnancy is approximately 1 month, with the interval between the first and second litters being 2 - 2.5 months.

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